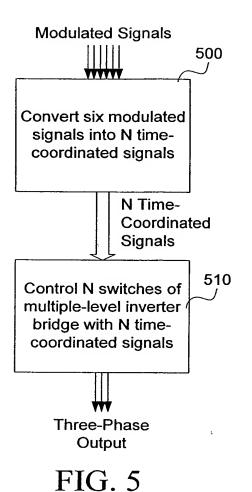
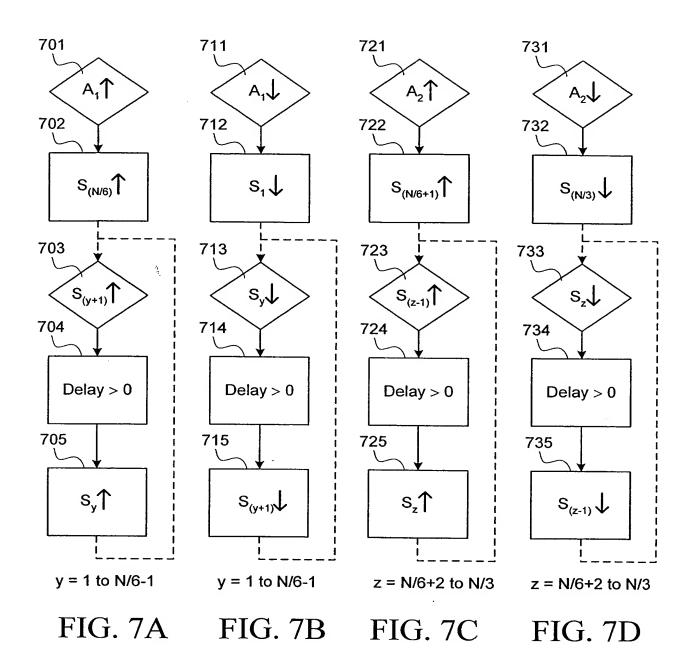
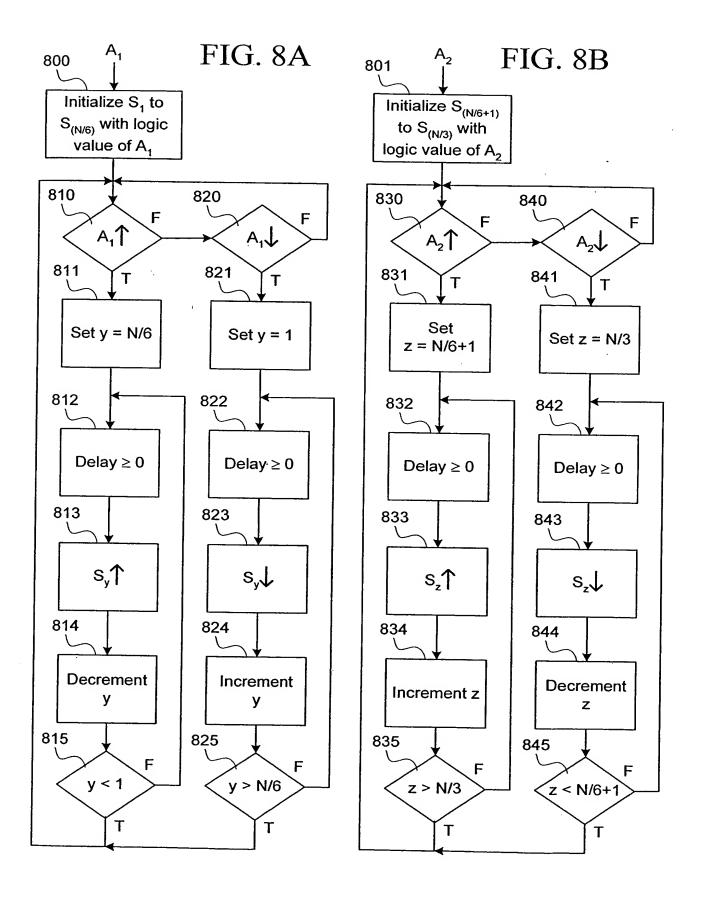


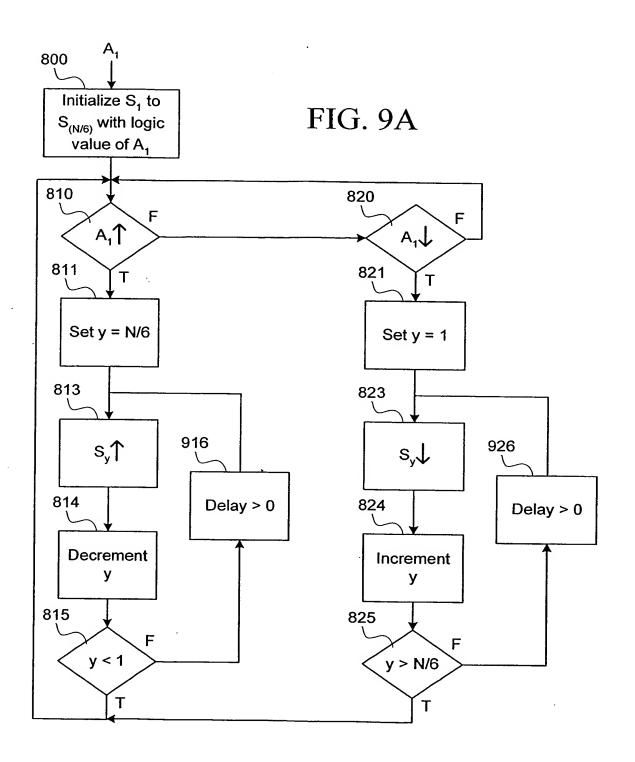
SWITCH STATE		<u>OFF</u>	<u>ON</u>	
3 LEVEL	1)	SI,S2	S3,S4	
	2)	SI,S4	\$2,\$3	FIG. 4A
	3)	S3,S4	SI,S2	110.111
4 LEVEL	1)	SI.S2.S3	\$4,\$5,\$6	
	2)	S1.S2.S6	S3,S4,S5	DIG (D
	3)	\$1,\$5,\$6	S2,S3,S4	FIG. 4B
	4)	\$4,\$5,\$6	SI.S2,S3	·
5 LEVEL	i)	SI,S2,S3,S4	\$5,\$6,\$7,\$8	
	2)	\$1,\$2,\$3,\$8	\$4,\$5,\$6,\$7	
	3)	SI.S2.S7,S8	S3.S4.S5.S6	FIG. 4C
	4)	SI,S6,S7,S8	\$2.\$3,\$4,\$5	
	5)	S5,S6,S7,S8	SI.S2,S3,S4	

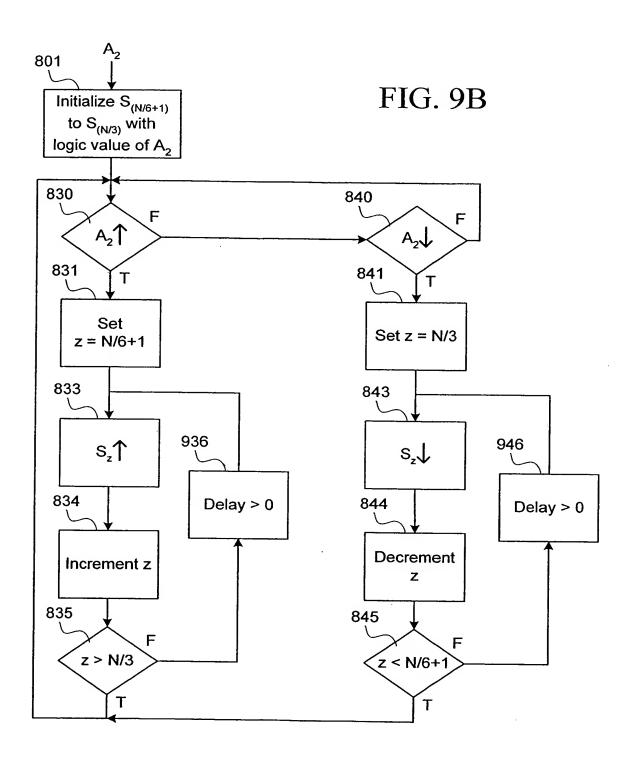


600 Convert modulated signals A₁ and A₂ into N/3 time-coordinated signals Time-Coordinated Signals S_1 to $S_{(N/3)}$ Control N/3 switches of branch of multiple-610 level inverter bridge with N/3 timecoordinated signals One Phase of Three-Phase Output FIG. 6









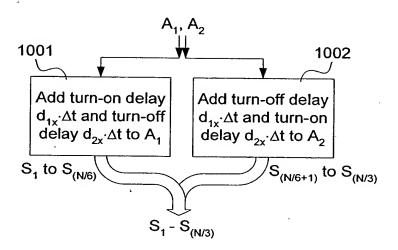
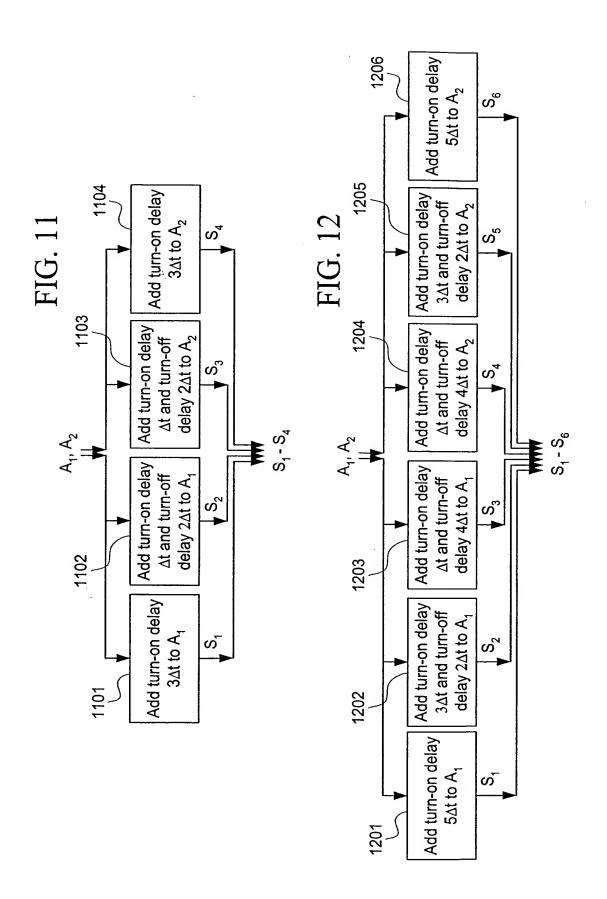
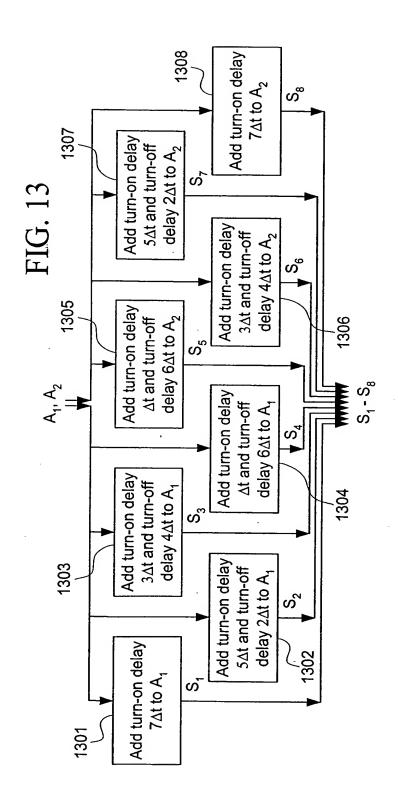
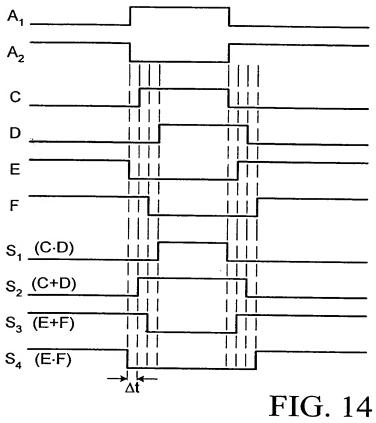


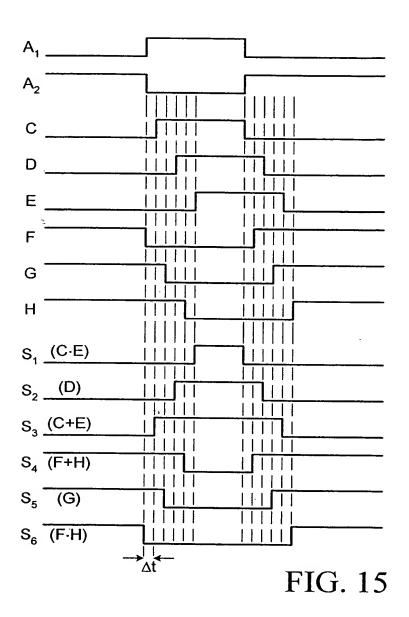
FIG. 10

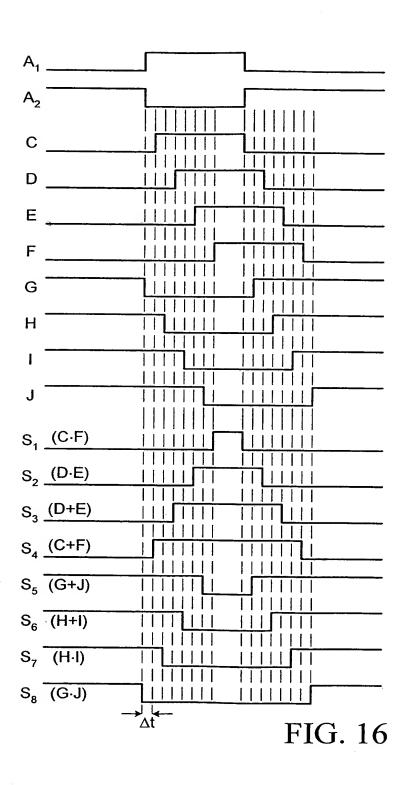


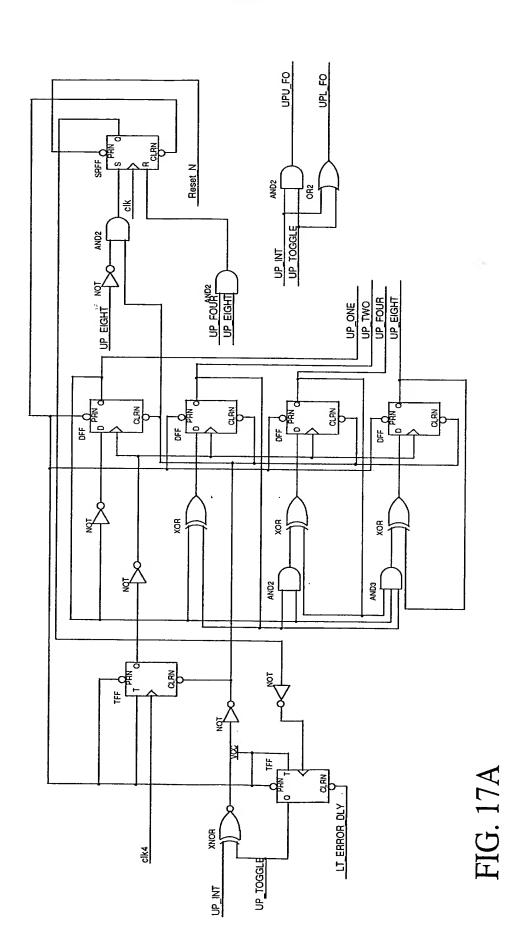


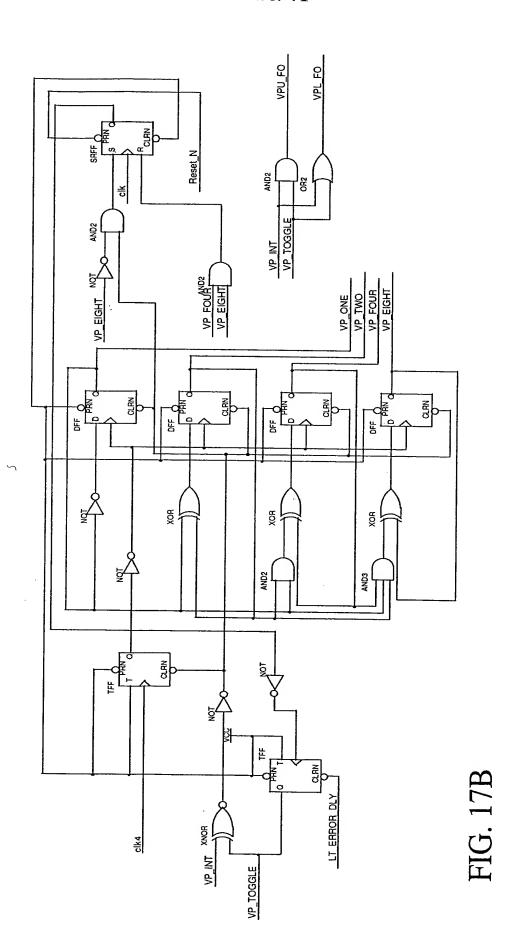
,3°4











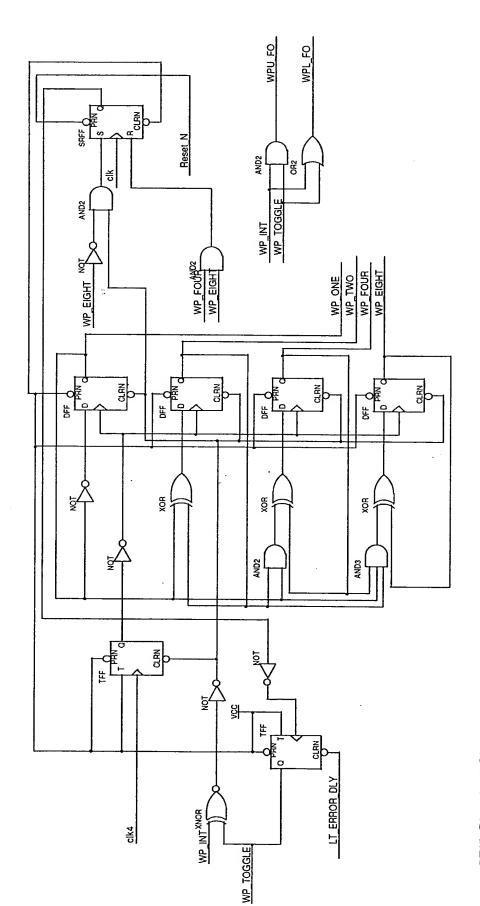


FIG. 17C

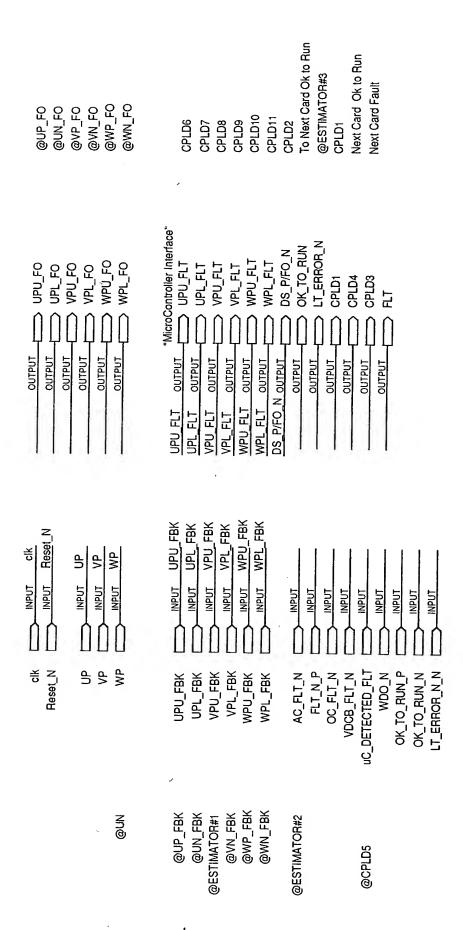
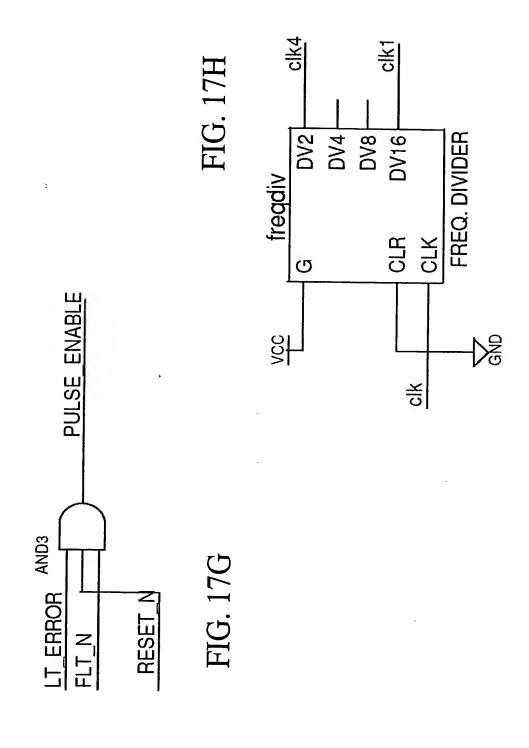
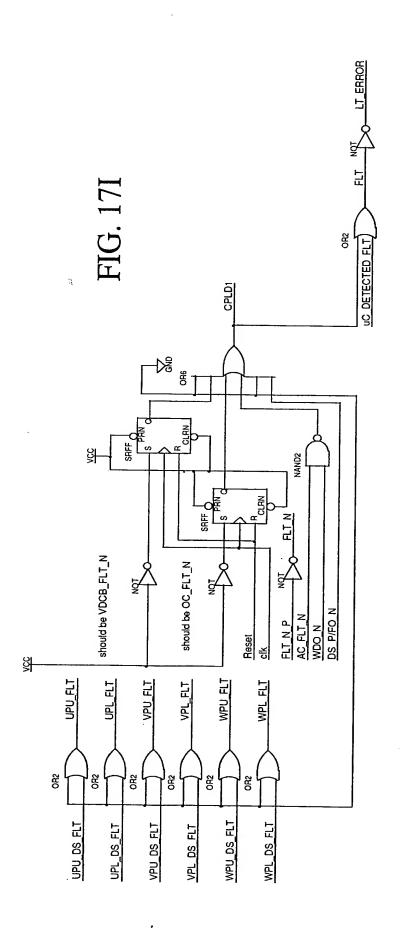


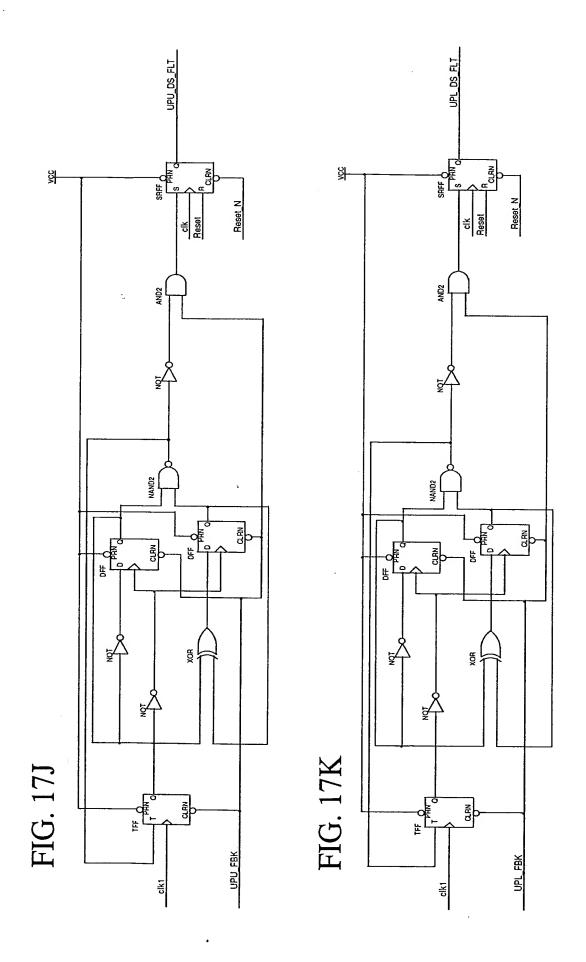
FIG. 17D

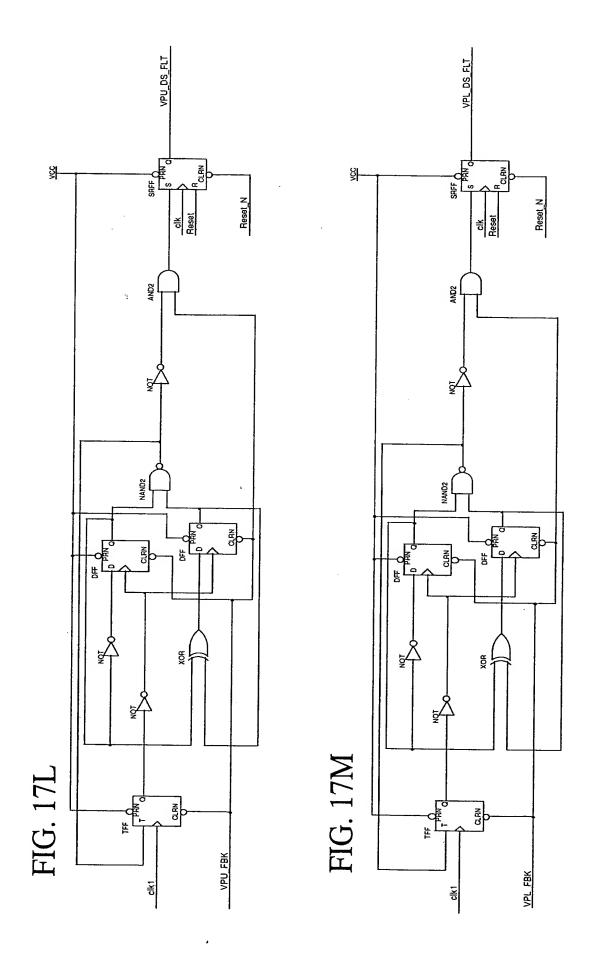
DS P/FO N

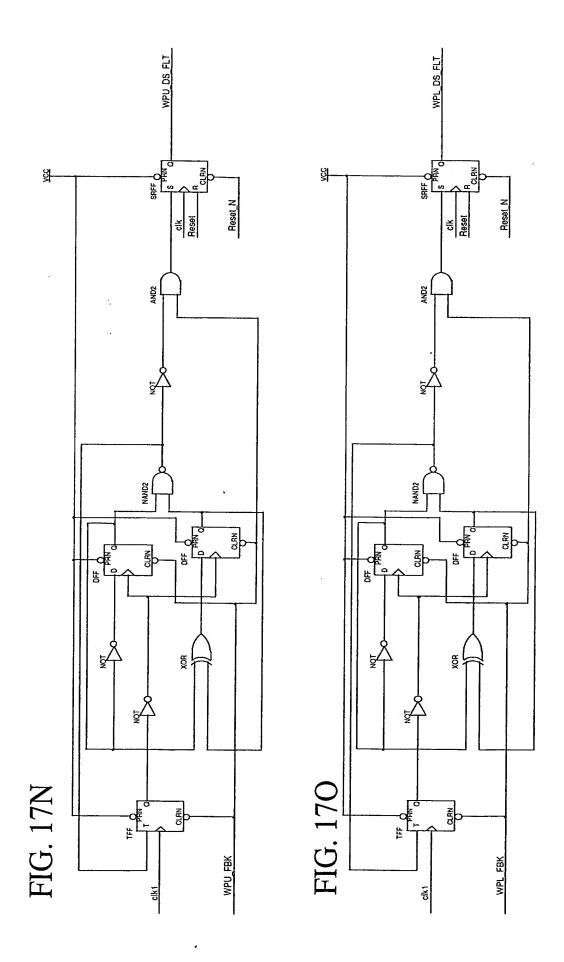
UPU_DS_FLT ORe WPU DS FLT WPL DS FLT UPL_DS_FLT VPU_DS_FLT VPL_DS_FLT FIG. 17E LT ERROR N CPLD3 CPLD4 VP INT WPN N_N Reset VP N OPNDRN **AND2** AND2 OK TO RUN P AND2 OK TO RUN N NOT N N PULSE ENABLE PULSE ENABLE PULSE_ENABLE LT_ERROR LT ERROR Reset N WP N VP N N_N Ν 9

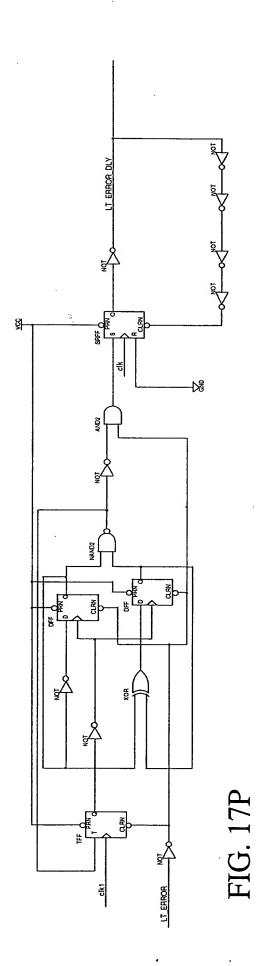


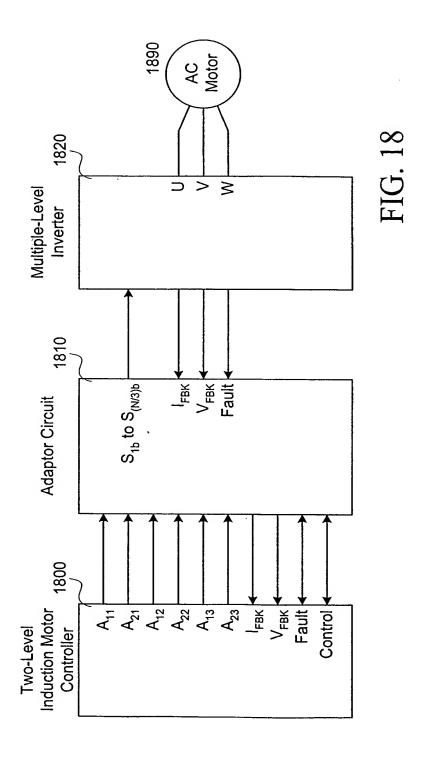


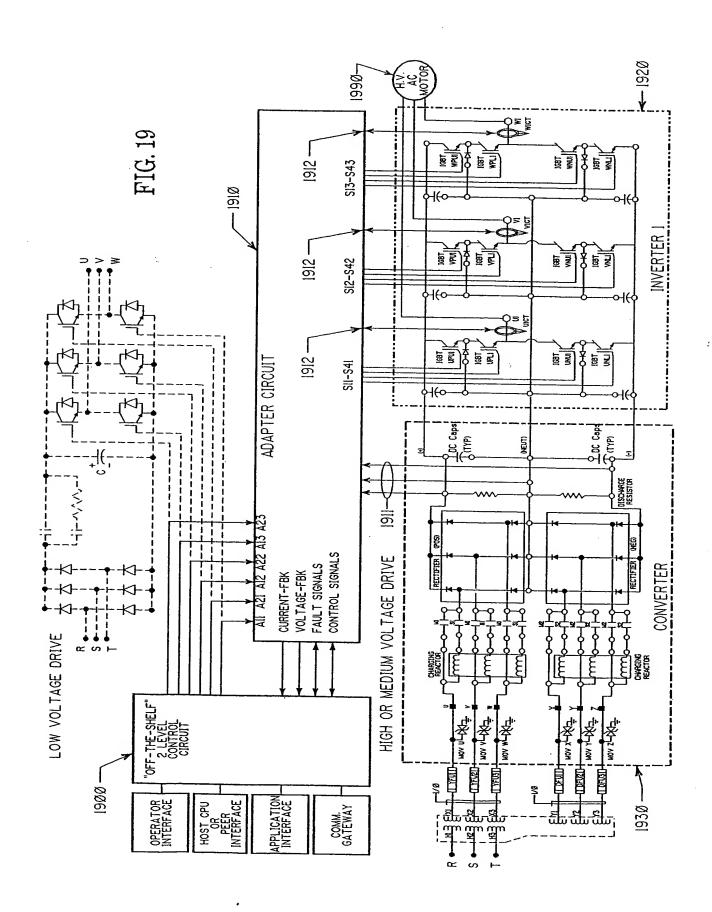


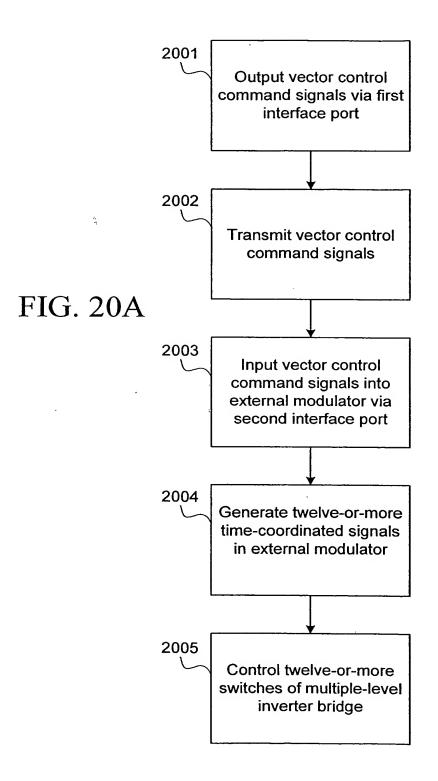


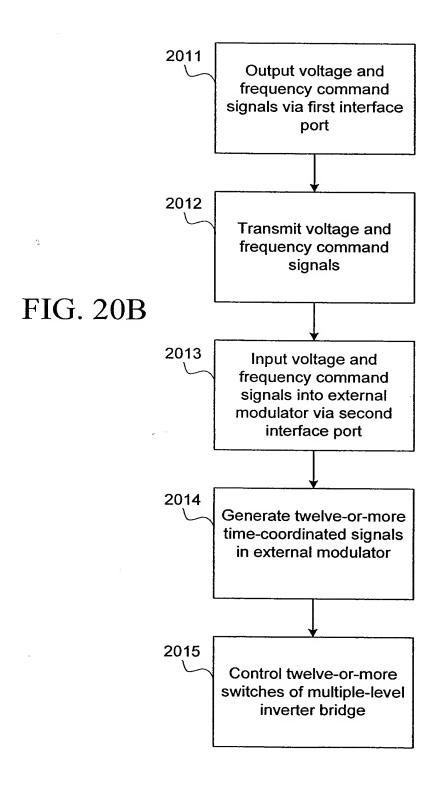


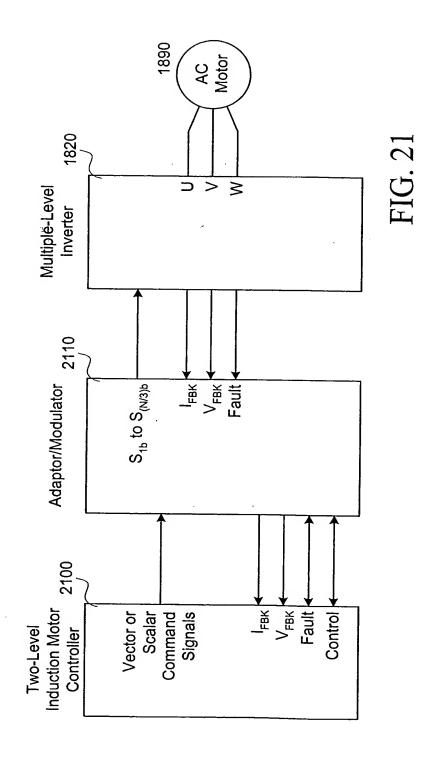


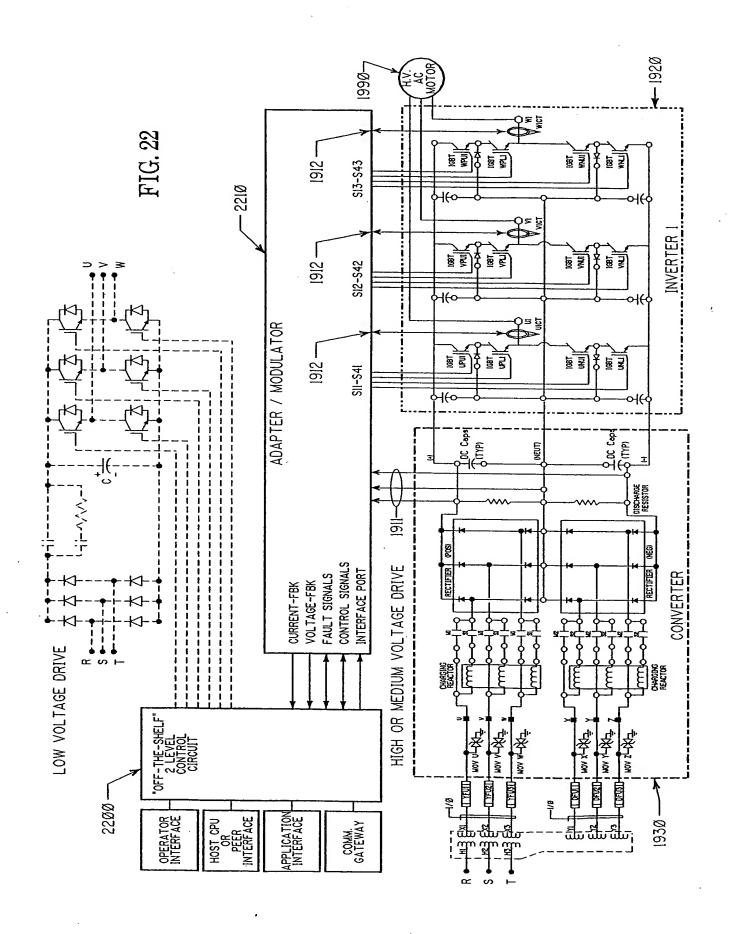




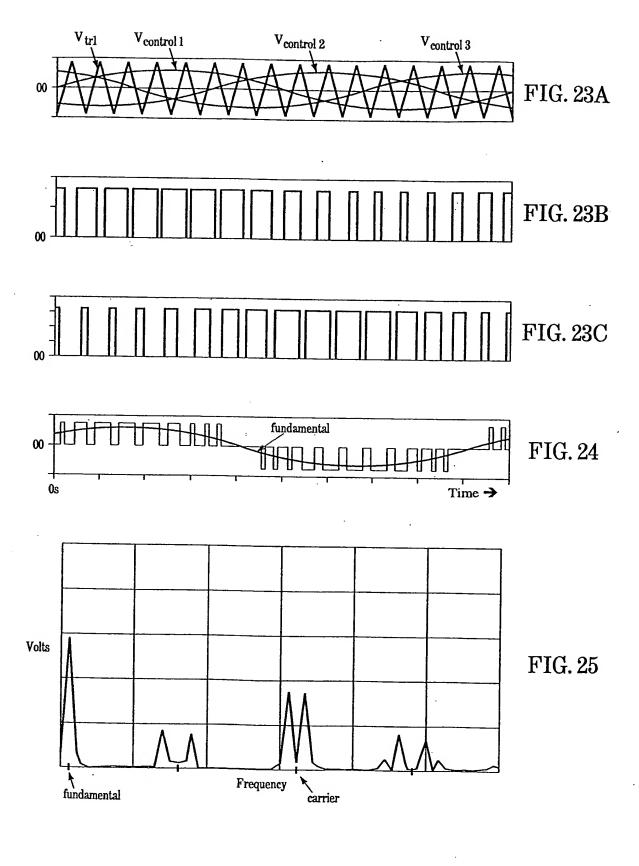








32/41



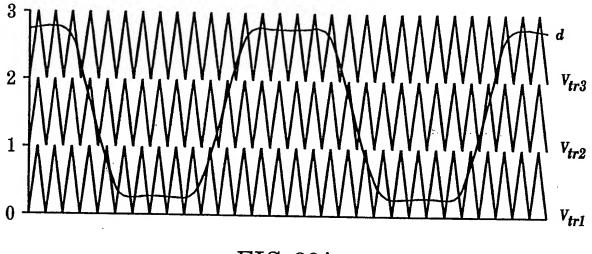


FIG. 26A

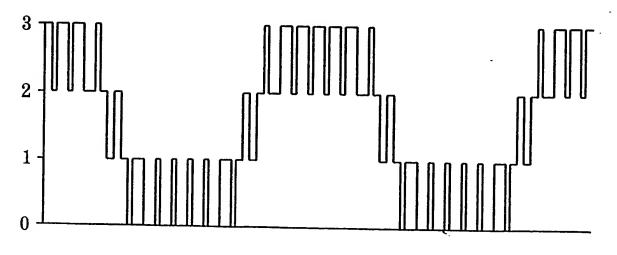
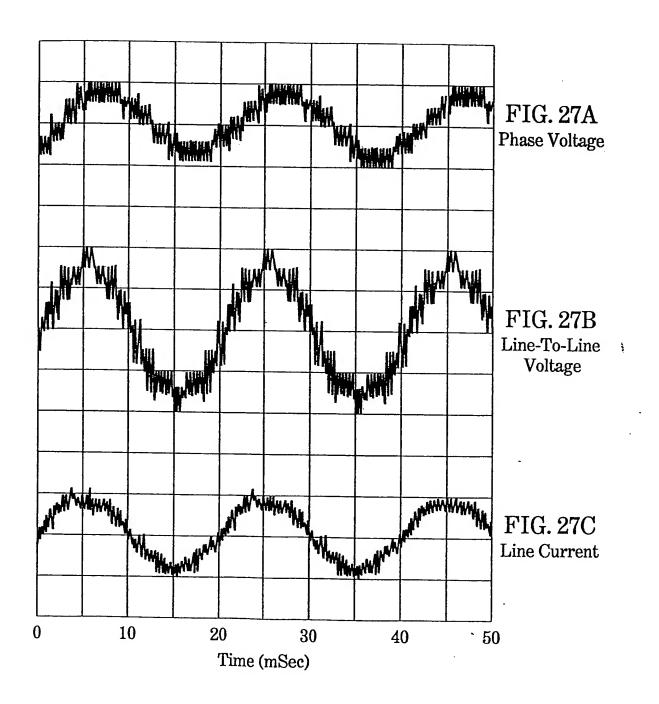
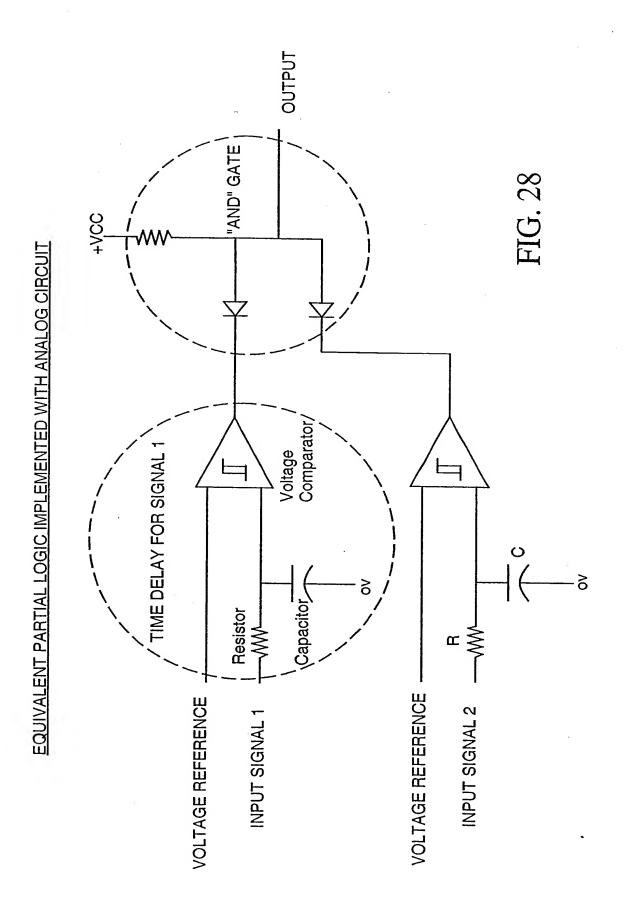


FIG. 26B





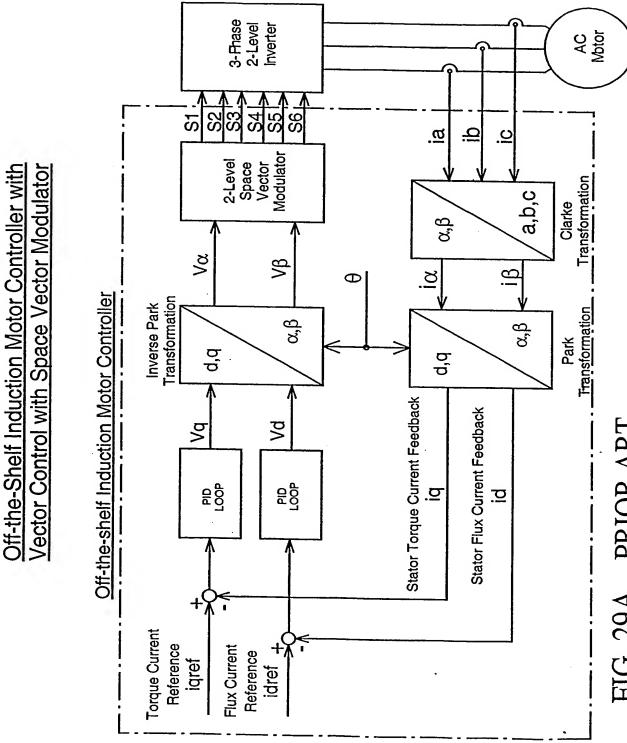


FIG. 29A PRIOR ART

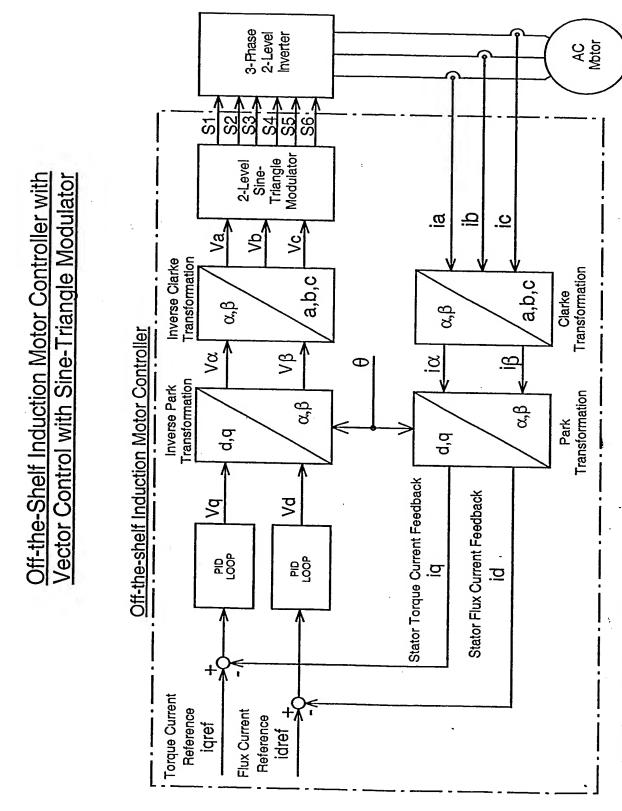
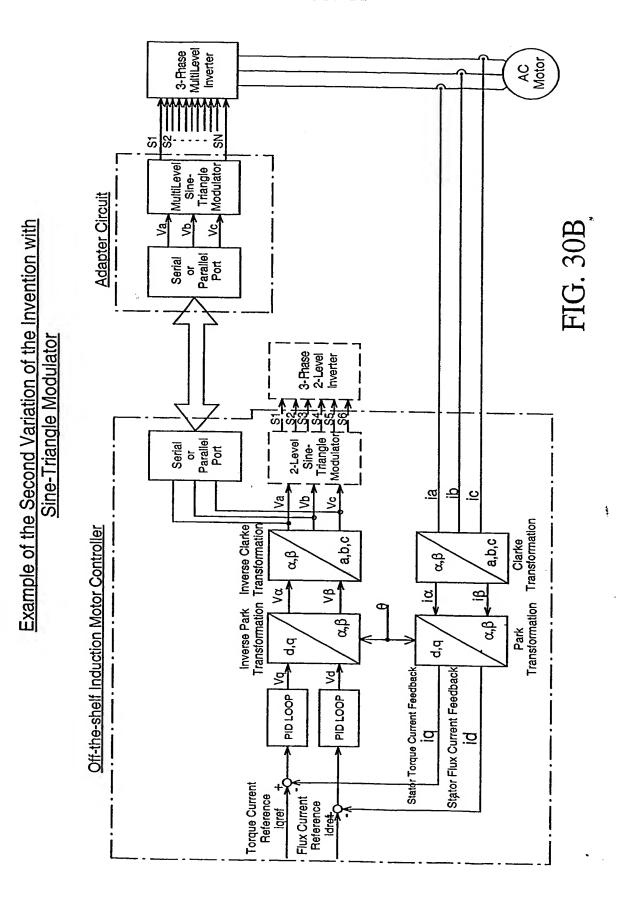


FIG. 29B PRIOR ART

3-Phase MultiLevel Inverter Ac Motor $^{\circ}$ MultiLevel Space Vector Modulator Adapter Circuit Example of the Second Variation of the Invention with FIG. 30A δ < 8 or Parallel Port Space Vector Modulator 3-Phase 2-Level Inverter <u>.ਕ</u> <u>.0</u> <u>.a</u> 2-Level Space Vector Modulator Serial or Parallel Port Park Clarke Transformation Transformation a,b,c α,β Off-the-shelf Induction Motor Controller <u>i</u> <u>ಶ</u> θ Inverse Park Transformation മ് g,B Park d,q d,d Stator Torque Current Feedback 🎝 Stator Flux Current Feedback ₽ PID LOOP PID LOOP .酉 ₫. Torque Current Reference idref + Flux Current Reference igref



3-Phase MultiLevel Inverter Ac Motor က Sine-Triangle Modulator MultiLevel FIG. 30C ر د \$ Transformation Inverse Clarke a,b,c g,g Adapter Circuit გ \ γ Inverse Park Transformation a,β d,d 2 Θ 3-Phase 2-Level Inverter Serial or Parallel Port <u>'a</u> <u>.</u> 0 Park Clarke Transformation Transformätion 2-Level Modulator Vector a,b,c α,β, Λα Vβ ರ Inverse Park Transformation α,β α,β Off-the-shelf Induction Motor Controller ġ,ġ Stator Torque Current Feedback 🗸 or Parallel Port Serial ۶ Stator Flux Current Feedback .酉 PID LOOP PID LOOP <u>0</u>. Torque Current Reference Flux Current Reference idreft igref

Example of the Second Variation of the Invention with Mathematical Transformations and Sine-Triangle Modulator

3-Phase MultiLevel Inverter A Ac ည MultiLevel Space Vector Modulator Mathematical Transformation and Space Vector Modulator Example of the Second Variation of the Invention with ζ< δ 9 Inverse Park Transformation Adapter Circuit 3-Phase 2-Level Inverter α,β d,q 2 Φ Triangle Modulator 2-Level Sine-Serial or Parallel Port <u>.a</u> 9 <u>့ပ</u> Inverse Clarke Transformation Clarke Transformation a,b,c a,b,c αβ g B /α/ 5/ 9 ಶ Inverse Park T<u>ransformat</u>ion Park Transformation გ. გგ Off-the-shelf Induction Motor Controller d, p d,q Serial or Parallel Port \$ ۶/ Stator Torque Current Feedback Stator Flux Current Feedback ₽ ₫. PID LOOP PID LOOP Torque Current Flux Current Reference idref+ Reference igref